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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,600	03/17/2004	Sung Yong Kim	0630-1985PUS1	4177
2292	7590	10/14/2005		EXAMINER
BIRCH STEWART KOLASCH & BIRCH				HSU, JONI
PO BOX 747				
FALLS CHURCH, VA 22040-0747			ART UNIT	PAPER NUMBER
			2671	

DATE MAILED: 10/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/801,600 Joni Hsu	KIM ET AL. Art Unit 2671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1,2 and 4-22 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) 1,2 and 4-13 is/are allowed.  
 6) Claim(s) 14-16, 19, 20 and 22 is/are rejected.  
 7) Claim(s) 17, 18 and 21 is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 23 June 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

***Response to Amendment***

2. Applicant's arguments, see pages 14-15, filed June 23, 2005, with respect to Claims 1, 2, and 4-13 have been fully considered and are persuasive. The rejections under 35 U.S.C. 112, second paragraph and 35 U.S.C. 102(b) of Claims 1, 2, 4-13 has been withdrawn.
3. Applicant's arguments with respect to claims 14-16, 19, 20, and 22 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Objections***

4. Claim 18 is objected to because of the following informalities: Claim 18 recites "D is the *a number*" where it should recite "D is the number of memory banks per row." Appropriate correction is required.
5. Claim 19 is objected to because of the following informalities: Claim 19 recites "pixel *comprises* further comprises" where it should recite "pixel further comprises." Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 14 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Carlton (US006667930B1).

8. With regard to Claim 14, Carlton describes a method for storing image data for an image in a memory wherein the memory includes a plurality of banks, comprising storing the image data in a plurality of memory banks, wherein pixel data for each horizontal line of the image are stored in two or more memory banks (*when drawing horizontal lines, two memory banks are accessed*, Col. 3, lines 19-25), and pixel data for each vertical line of the image are stored such that at least one memory bank includes two or more pixel data of the vertical line (*drawing a vertical line, all four banks are accessed at the same time with each memory bank outputting pixels from the same column*, Col. 3, lines 12-15).

9. With regard to Claim 15, Carlton describes mapping each pixel data of the image data to a particular memory bank and row and column within the particular memory bank (*drawing a vertical line, all four banks are accessed at the same time with each memory bank outputting pixels from the same column, Col. 3, lines 12-15, when drawing a horizontal line in the area covered by four squares, two memory banks 308 are first accessed together to retrieve pixels from the same row, for example row 0, then the memory banks 310 are accessed to retrieve pixels from row 1, Col. 3, lines 19-25*).

10. Thus, it reasonably appears that Carlton describes or discloses every element of Claims 14 and 15, and therefore anticipates the claims subject.

#### ***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

12. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.

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3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

13. Claims 16, 19, 20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlton (US006667930B1) in view of Yoshioka (US006075899A).

14. With regard to Claim 16, Carlton is relied upon for the teachings as discussed above relative to Claim 15.

However, Carlton does not teach determining rows per unit line. However, Yoshioka describes that half-pel interpolation in the vertical axis refers to the generation of components for each line in a luminance block using an average value of a component on a given row and the component on the next row (Col. 4, lines 1-4). Therefore, Yoshioka discloses that the step of mapping each pixel comprises determining rows per unit line, wherein the rows per unit line is defined as a number of rows of each memory bank (Col. 15, lines 64-67) needed to store one horizontal line of image data; and mapping each pixel based on the rows per unit line (Col. 13, lines 18-40).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Carlton to include determining rows per unit line as suggested by Yoshioka because Yoshioka suggests that this method has the advantage of reducing the number of reads and read times for reads of luminance components and chrominance components performed on an SDRAM (Col. 7, lines 16-21).

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15. With regard to Claim 19, Carlton does not teach that the step of mapping each pixel further comprises determining an offset, wherein the offset is defined as a number of rows of each memory bank occupied by the image data; and mapping each pixel also based on the vertical offset. However, Yoshioka describes that the step of mapping each pixel further comprises determining an offset, wherein the offset is defined as a number of rows of each memory bank occupied by the image data; and mapping each pixel also based on the vertical offset (Col. 13, lines 18-40). This would be obvious for the same reasons given in the rejection for Claim 16.

16. With regard to Claim 20, Carlton does not teach that the offset is based on a number of pixels in one vertical line of image data, a number of pixel data storable per line of memory bank, the rows per unit line. However, Yoshioka describes that half-pel interpolation in the vertical axis refers to the generation of components for each line in a luminance block using an average value of a component on a given row and the component on the next row (Col. 4, lines 1-4). The offset is based on a number of luminance components in one vertical line of image data (Col. 13, lines 18-40). The number of luminance components is the same as the number of pixels (Col. 1, lines 37-49). Therefore, the offset is based on a number of pixels in one vertical line of image data, a number of pixel data storable per line of memory bank (Col. 15, lines 64-67), the rows per unit line (Col. 13, lines 18-40). This would be obvious for the same reasons given in the rejection for Claim 16.

17. With regard to Claim 22, Carlton does not teach that the pixel data comprises one of luminescence and chrominance values. However, Yoshioka describes that the pixel data comprises one of luminescence and chrominance values (Col. 7, lines 16-21).

It would have been obvious to one of ordinary skill in this art at the time of invention by applicant to modify the device of Carlton so that the pixel data comprises one of luminescence and chrominance values as suggested by Yoshioka because Yoshioka suggests that it is common for video data to be characterized by luminance component data and chrominance component data (Col. 1, lines 21-30).

*Allowable Subject Matter*

18. Claims 1, 2, and 4-13 are allowed.

19. Claims 17, 18 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record fail to teach or suggest individually or in combination a memory access control apparatus, wherein the apparatus further comprising the following limitations: "wherein the predetermined data is a word per bank, a row per unit line, an offset, and a base row value" (as per Claim 1). Claims 2 and 4-13 depend from Claim 1, and therefore also contain allowable subject matter. The prior art also does not teach that the rows per unit line is based on

a number of pixels in the one horizontal line of image data, a number of pixel data storables per column of the memory bank, a number of columns per memory bank, and a number of memory banks per row, as recited in Claim 17. Claim 18 depends from Claim 17, and therefore also contains allowable subject matter. The prior art also does not teach that the offset is calculated as  $(E/F)*G$ , wherein E is the number of pixels in one vertical line of image data, F is the number of pixel data storables per line of memory bank, and G is the rows per unit line, as recited in Claim 21. The above limitations of the present claimed invention have not found to be anticipated, suggested or made obvious by the prior art of record, either singularly or in combination.

### *Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joni Hsu whose telephone number is 571-272-7785. The examiner can normally be reached on M-F 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JH



Kee M. Tung  
Primary Examiner